

Offshore wind industry update & VA Supply Chain Partnership Directory

VOWDA Board Meeting
Henrico Country Public Library
January 10, 2020
Andy Geissbuehler

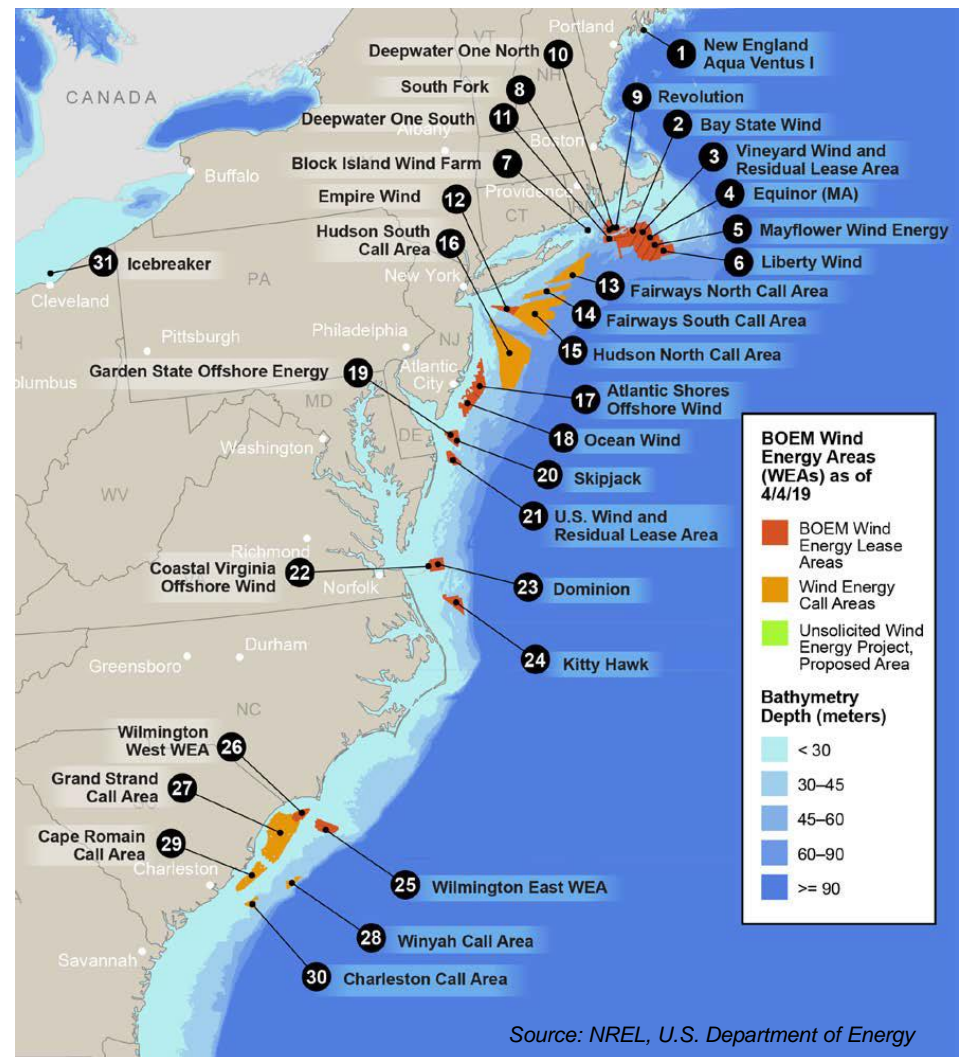
US East Coast OSW market forecast to 2035

East Coast project geography

- State driven offshore wind targets exceed 26 GW by 2035
- Additional commitments anticipated, increasing the 2035 forecast to >30 GW
- East Coast offtake agreements expected to reach 6.5 GW* in 2019

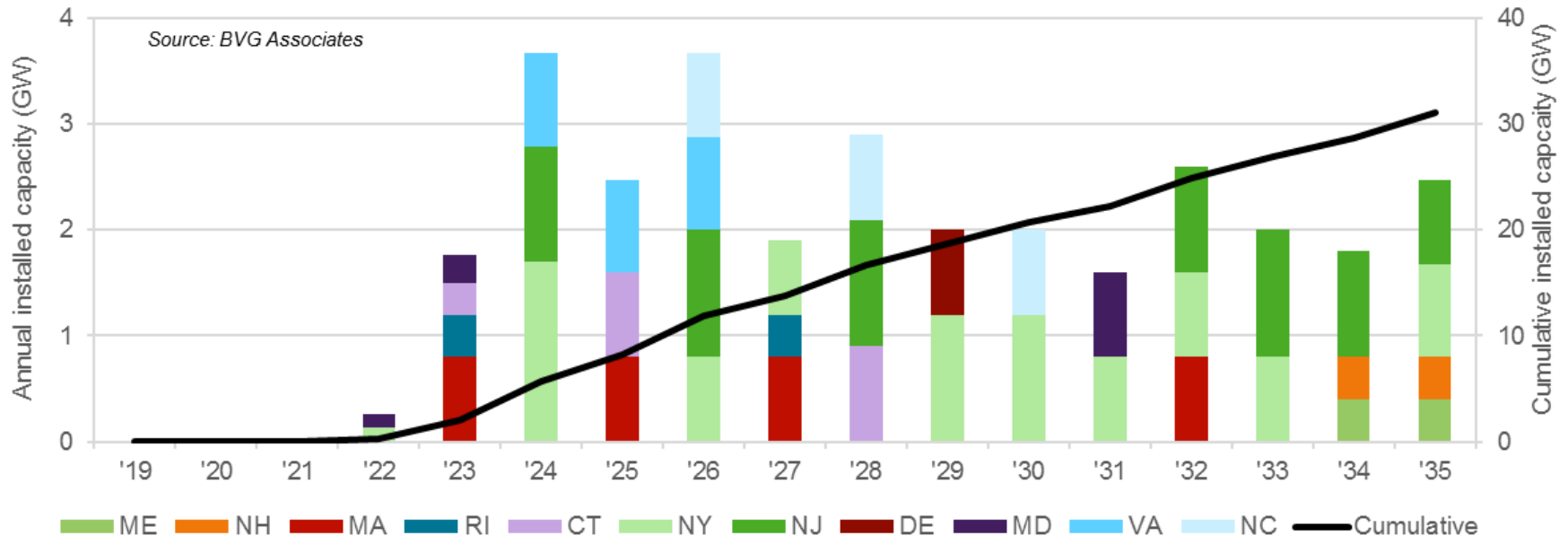
** NOT including the largest development in the US (Dominion's 2.64 GW in VA)*

- 15 BOEM lease areas auctions:
 - 8 Northern lease areas ~16 GW
 - 7 Southern lease areas ~12 GW
- Next lease auction in 2020 (NY)



US East Coast OSW market forecast to 2035

East Coast project volume

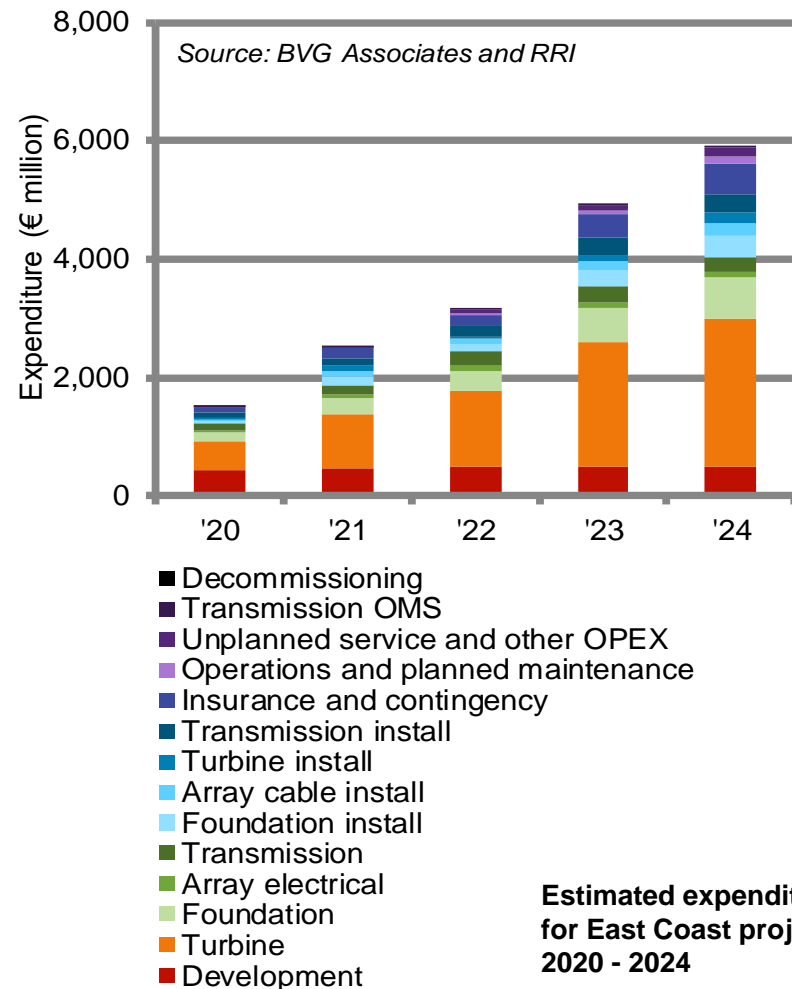


- CAPEX for East Coast offshore windfarms expected to approach ~100 B by 2035
- Infrastructure and supply chain investments will provide additional volume

US East Coast OSW market forecast to 2035

East Coast supply chain load

2035 East Coast Forecast [MW]		
State policy		expected
NY	9000	9000
NJ	7500	7500
MA	3200	3200
NC		2400
VA	2600	2612
CT	2000	2000
MD	1200	1200
RI	400	400
DE		
SC		
ME		
multiple States est.		2000
25,900		30,312
Potential for >30 GW by 2035		



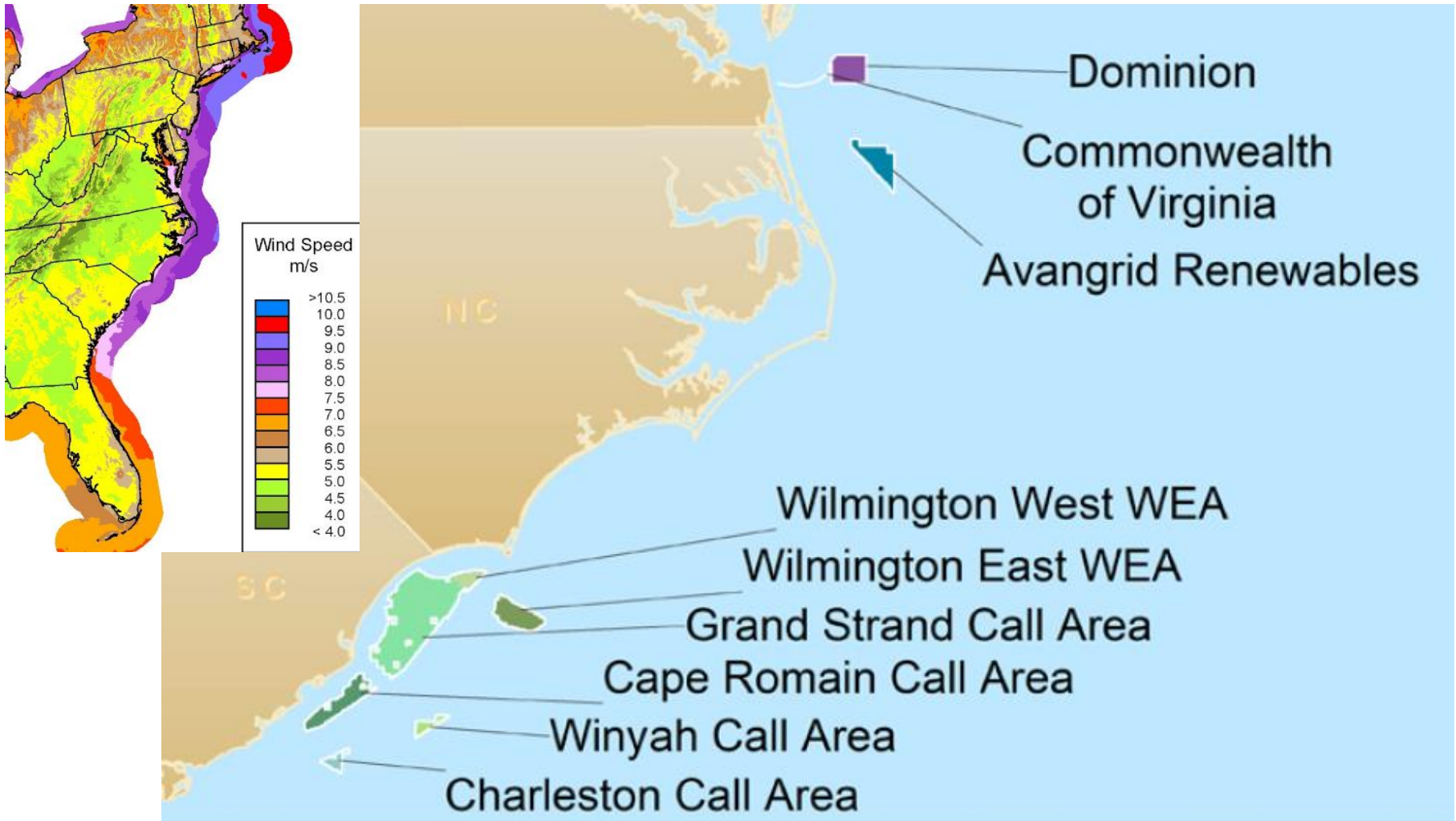
**Estimated expenditure
for East Coast projects
2020 - 2024**

Anticipated new BOEM lease area auctions

- BOEM committed to collaborate with States to advance lease auctions, progress impacted by resources and the Vineyard Wind permitting delays.
- Anticipated auctions (timeline estimated):
 - New York (NY): Q3/Q4 2020 (4 lease areas in NY Bight)
 - California (CA): 2021 (assume 2 GW, potential >> 10 GW)
 - Carolinas (NC / SC): 2021/22 (assume 4 GW)
 - New Jersey (NJ): 2021/22 (assume 3 GW, potential higher TBD)
 - Gulf of Maine (MA/NH/ME): 2022/23 (assume 4 GW, potential higher TBD)
 - Virginia (VA): What is in VA's best interest?

Further lease area potential in VA, NC and SC

Mid Atlantic Geography

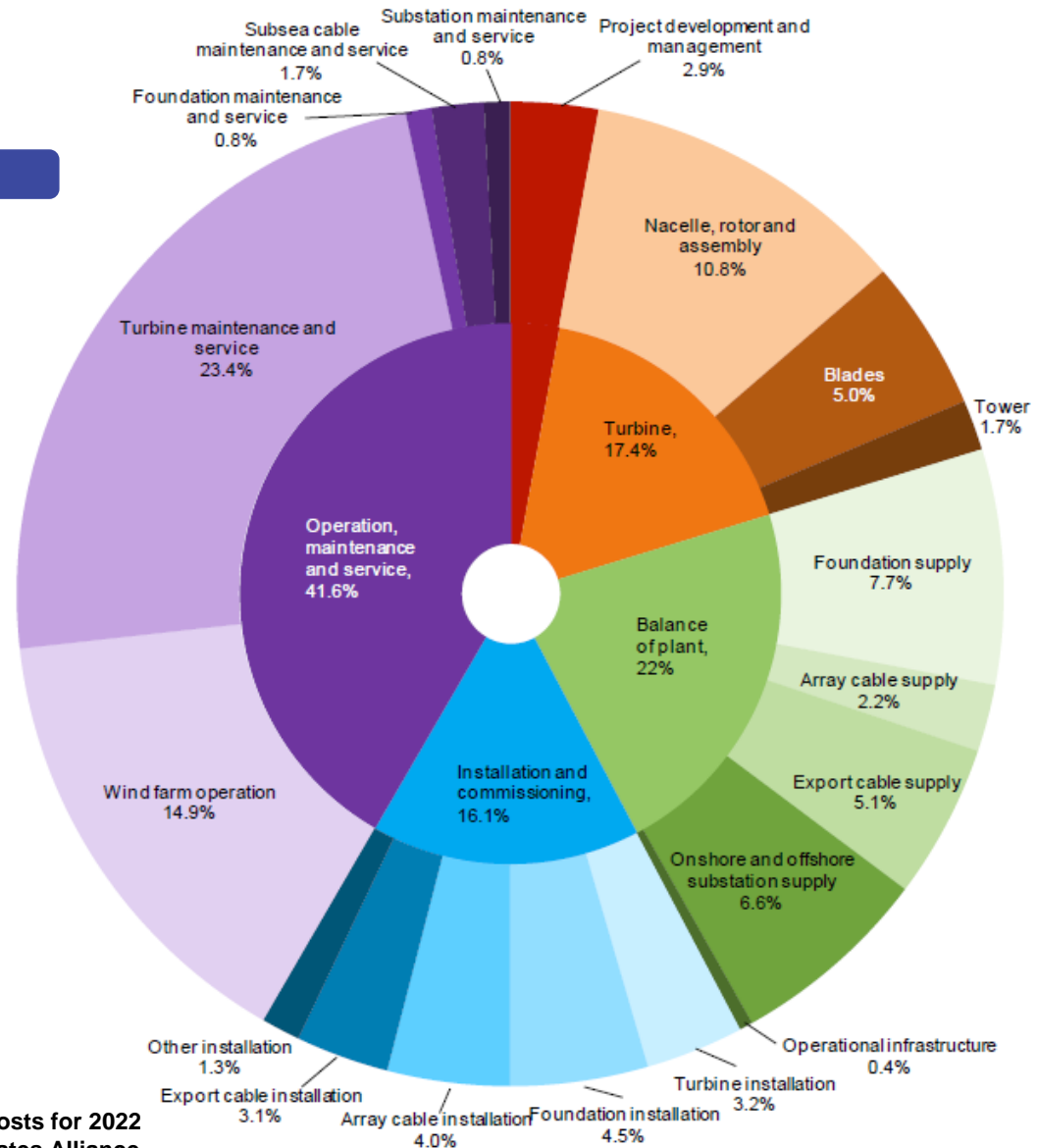


US East Coast OSW lifetime expenditures

Typical scope breakdown

Primary local scope opportunities:

- Turbine foundations
- Substation (onshore and offshore)
- Blades & towers
- Component staging
- Windfarm installation
- R&D
- Windfarm O&M



Anticipated US Offshore Windfarm costs for 2022
BVG Associates for Clean Energy States Alliance

Virginia Supply Chain Partnership Directory - access



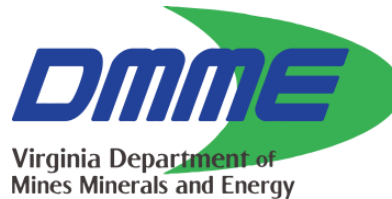
Virginia's Offshore Wind Supply Chain and Service Industry Opportunity

BVGA also created the [Virginia Offshore Wind Supply Chain Resource Network Directory](#), which connects offshore wind developers, wind turbine suppliers and other prime contractors with Virginia professional services, manufacturers, equipment and material suppliers and other general service providers relative to all phases of an offshore wind project. Supply chain prospects are encouraged to promote their services by adding their information to the [Virginia Offshore Wind Supply Chain New Supplier Form](#).

"The Commonwealth's lead-by-example effort to align businesses interested in offshore wind with an industry at the early stages of development is the most important step in enabling the East Coast offshore wind build-out. A timely supply chain entry will equip Virginia with the skills and infrastructure needed to participate in this major industry growth opportunity."

— Department of Mines, Minerals and Energy Director John Warren

Virginia Supply Chain Partnership Directory - collaboration



Personalized new partnership orientation

Partnership tool facilitator and Virginia offshore wind team clearinghouse



Align industry needs with partner providers



Facilitate the offshore wind industry Virginia choice



Partnership tool database support

Enable and grow Virginia's offshore wind business opportunity through partnerships, infrastructure and workforce development.

Virginia Supply Chain Partnership Directory – sign up window



Please enter information about you and your company so we can match you with potential partners.

<input type="text" value="Company name"/>			
<input type="text" value="website"/>			
<input type="text" value="First name"/>		<input type="text" value="Last name"/>	
<input type="text" value="Job title"/>		<input type="text" value="Email address"/>	
<input type="text" value="Work phone"/>		<input type="text" value=""/>	
<input type="text" value="Street address"/>	<input type="text" value="Suite, Fl, Apt"/>		
<input type="text" value="US Postal code"/>	<input type="text" value="City"/>		<input type="text" value="State"/>
		<input type="text" value="Country"/>	

COMPANY BROCHURE Upload your company brochure or capabilities statement by dragging a file onto the field to the right <div>CAPABILITY STATEMENT</div>	W-9 Upload your W-9 form by dragging a file onto the field to the right <div>W9</div>	MBE/WBE/SDBE STATUS <input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> SDBE Upload current certification by dragging a file onto the field to the right <div>MBE CERTIFICATION</div>
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Organization type	<input type="text" value="Organization type"/>	Certifications <input type="checkbox"/> ISO 9001:2015 (Quality Management Systems) <input type="checkbox"/> ISO 14001:2015 (Environmental Management Systems) <input type="checkbox"/> ISO 45001:2018 or OHSAS 18001 Safety Management Systems <input type="checkbox"/> APQP for Wind Training <input checked="" type="checkbox"/> None
Sector	<input type="text" value="Sector"/>	
# of employees	<input type="text" value="# of employees"/>	

Virginia Supply Chain Partnership Directory – aligned database

Supply Chain Categories - SERVICES

SERVICES

PRODUCTS/MATERIALS

Select either SERVICES or PRODUCTS/MATERIALS above, then click on a category below to see all the companies under that category.

TURNKEY PROJECT (DESIGN / PROCUREMENT / CONSTRUCTION / INSTALLATION)

Wind Power Plants	22 companies
Marine & Underground Cable Systems	9 companies
Fiber Cable Systems	4 companies
Other Modules / Units	4 companies

BUILDING & CONSTRUCTION WORKS

Reservoir Construction Works	7 companies
Pier / Port Construction Works	18 companies
Road / Bridge Construction Works	19 companies
Piling / Boring	34 companies
Tunnelling Construction Works	6 companies
General Buildings / Offices	5 companies
Utility Construction	41 companies
Embankments / Earth Banks Construction Works	11 companies
Ground Work / Leveling Works	8 companies
Cable & Pipeline Trenches Construction Works	30 companies
Other Building & Construction Works	8 companies

WATER / SEWAGE CONSTRUCTION WORKS

Pipe Rehabilitation	4 companies
Pipe Lining (Trenchless Sewer Repairs)	2 companies
Guided Drilling	4 companies

Virginia Supply Chain Partnership Directory - synergies

Collaboration benefits for all stakeholders:

- Connect industry needs with a broad network of goods and service providers
- Provide an updated baseline of available resources
- Establish a regional offshore wind peer network
- Provide industry specific follow-up and address questions of new partners signing up
- National database efficiencies while still providing a Virginia specific platform



